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L3 28 DUP REM L2 (40 DUPLICATES REMOVED)

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L3 ANSWER 1 OF 28 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 2001252977 MEDLINE
DOCUMENT NUMBER: 21165355 PubMed ID: 11264434
TITLE: Bilirubin exerts additional toxic effects in hypoxic cultured neurons from the developing rat brain by the recruitment of glutamate neurotoxicity.
AUTHOR: Grojean S; Lievre V; Koziel V; Vert P; Daval J L
CORPORATE SOURCE: Universite Henri Poincare-Nancy 1, 24-30 rue Lionnois, B.P.
3069, 54013 Nancy Cedex, France.
SOURCE: PEDIATRIC RESEARCH, (2001 Apr) 49 (4) 507-13.
Journal code: OWL; 0100714. ISSN: 0031-3998.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English

FILE SEGMENT: Priority Journals
ENTRY MONTH: 200106
ENTRY DATE: Entered STN: 20010618
Last Updated on STN: 20010618
Entered Medline: 20010614

AB . . . common risk factors in newborns, which may act synergistically to produce anatomical and functional disturbances of the CNS. Using primary **cultures** of **neurons** from the fetal rat brain, it was recently reported that neuronal apoptosis accounts for the deleterious consequences of these two insults. To investigate the influence of hypoxia, bilirubin, or their combination on the outcome of neuronal **cells** of the immature brain, and delineate cellular mechanisms involved, 6-d-old cultured **neurons** were submitted to either hypoxia (6 h), unconjugated bilirubin (0.5 microM), or to combined **conditions**. Within 96 h, **cell** viability was reduced by 22.7% and 24.5% by hypoxia and bilirubin, respectively, whereas combined treatments decreased vital score by 34%. Nuclear **morphology** revealed 13.4% of apoptotic **cells** after hypoxia, 16.2% after bilirubin, and 22.6% after both treatments. Bilirubin action was specifically blocked by the glutamate receptor antagonist MK-801, which was without effect on the consequences of hypoxia. Temporal **changes** in [(3)H]leucine incorporation rates as well as beneficial effects of cycloheximide reflected a programmed phenomenon dependent upon synthesis of selective proteins. The presence of bilirubin reduced hypoxia-induced alterations of **cell** energy metabolism, as reflected by 2-D-[(3)H]deoxyglucose incorporation, raising the question of free radical scavenging. Measurements of intracellular radical generation, however,. . . antioxidant role of bilirubin. Taken together, our data suggest that low levels of bilirubin may enhance hypoxia effects in immature **neurons** by facilitating glutamate-mediated apoptosis through the activation of N:-methyl-D-aspartate receptors.

L3 ANSWER 2 OF 28 MEDLINE DUPLICATE 2
ACCESSION NUMBER: 2001066518 MEDLINE
DOCUMENT NUMBER: 20556375 PubMed ID: 11104513
TITLE: Characteristics of odorant elicited calcium changes in cultured human olfactory neurons.
AUTHOR: Gomez G; Rawson N E; Hahn C G; Michaels R; Restrepo D
CORPORATE SOURCE: Monell Chemical Senses Center, Philadelphia, Pennsylvania 19104-3308, USA.. gomez@monell.org
CONTRACT NUMBER: DC 00214 (NIDCD)
DC 00244 (NIDCD)
DC 00566 (NIDCD)
+
SOURCE: JOURNAL OF NEUROSCIENCE RESEARCH, (2000 Dec 1) 62 (5) 737-49.
Journal code: KAC. ISSN: 0360-4012.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200012
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20001222

AB An important step in establishing and utilizing a **cell culture** system for the in vitro study of olfaction is assessing whether the cultured **cells** possess physiological properties similar to those of mature olfactory **neurons**. Various investigators have successfully established proliferating **cell** lines from olfactory tissue, but few have demonstrated the characteristics of odor sensitivity of these **cells**. We successfully established

cultured **cell** lines from adult human olfactory tissue obtained using an olfactory biopsy procedure and measured their ability to respond to odor stimulation using calcium imaging techniques. A subset of the human olfactory **cells** in **culture** displayed a distinct **morphology** and specifically expressed immunocytochemical markers characteristic of mature human olfactory **neurons** such as OMP, G(olf), NCAM and NST. Under defined growth **conditions**, these cultured **cells** responded to odorant mixes that have been previously shown to elicit intracellular calcium **changes** in acutely-isolated human olfactory **neurons**. These odorant-elicited calcium responses displayed characteristics similar to those found in mature human olfactory **neurons**. First, cultured **cells** responded with either increases or decreases in intracellular calcium. Second, increases in calcium were abolished by removal of extracellular calcium. Third, inhibitors of the olfactory signal transduction cascades reversibly blocked these odorant-elicited intracellular calcium **changes**. Our results demonstrate that **cultures** of adult human olfactory **cells** established from olfactory biopsies retain some of the in vivo odorant response characteristics of acutely isolated **cells** from the adult olfactory epithelium. This work has important ramifications for investigation of olfactory function and dysfunction using biopsy procedures. . .

L3 ANSWER 3 OF 28 MEDLINE DUPLICATE 3
ACCESSION NUMBER: 2000259593 MEDLINE
DOCUMENT NUMBER: 20259593 PubMed ID: 10797552
TITLE: Pressure related apoptosis in neuronal cell lines.
AUTHOR: Agar A; Yip S S; Hill M A; Coroneo M T
CORPORATE SOURCE: Cell Biology Lab, School of Anatomy, University of New South Wales, Sydney, Australia.
SOURCE: JOURNAL OF NEUROSCIENCE RESEARCH, (2000 May 15) 60 (4) 495-503.
Journal code: KAC; 7600111. ISSN: 0360-4012.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200006
ENTRY DATE: Entered STN: 20000706
Last Updated on STN: 20000706
Entered Medline: 20000623

AB . . . if it varies beyond its normal range. The increased intra-ocular pressures in acute glaucoma are associated with the loss of **neurons** by apoptosis. Little is known regarding the interaction between pressure and apoptosis at the level of the **cell**. The model developed in this study examines the effects of elevated ambient hydrostatic pressure directly upon cultured neuronal lines. **Conditions** were selected to be within physiological limits: 100 mmHg over and above atmospheric pressure for a period of 2 hr,. . . as seen clinically in acute glaucoma. This system can be used to investigate pressure relatively independently of other variables. Neuronal **cell** line **cultures** (B35 and PC12) were subjected to pressure **conditions** in specially designed pressure chambers. Controls were treated identically, except for the application of pressure, and positive controls were treated with a known apoptotic stimulus. Apoptosis was detected by **cell morphology** **changes** and by 2 specific apoptotic markers: TUNEL (Terminal transferase dUTP Nick-End Labeling) and Annexin V. These fluorescent markers were detected. . . apoptosis compared to equivalent controls. Our results suggest that pressure alone may act as a stimulus for apoptosis in neuronal **cell cultures**. This raises the possibility of a more direct relationship at the cellular level between pressure and neuronal loss.

L3 ANSWER 4 OF 28 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 2000:382266 BIOSIS
DOCUMENT NUMBER: PREV200000382266
TITLE: Cytology and culture of neurosecretory cell in the eyestalk of Eriocheir sinensis.
AUTHOR(S): Sun Jin-sheng (1); Liu An-xi (1); Chen Jia-tong (1); He Bing-jun (1); Wang Xiu-ling (1); Guo Shi-yi (1); Wang Yi-nong (1)
CORPORATE SOURCE: (1) Department of Biology, Nankai University, Tianjin, 300071 China
SOURCE: Acta Hydrobiologica Sinica, (July, 2000) Vol. 24, No. 4, pp. 374-379. print.
ISSN: 1000-3207.
DOCUMENT TYPE: Article
LANGUAGE: Chinese
SUMMARY LANGUAGE: Chinese; English
AB The neurosecretory **cells** were studied in terms of cytology and primary **culture** in the MTXO of Eriocheir sinensis, and a practical method for primary **culture** of peptidergic **neurons** was set up. The peptidergic **neurons**, when dissociated from the MTXO, exhibited immediate outgrowth for 3-5 days and survived for 18 days or more in the defined medium supplemented with glutamine and antibiotics. The **neurons** could survive in some **conditions** involving **changes** of pH(7.0- 7.9) temperature (22degreeC - 28degreeC) and osmolarity (950- 1100mOsm). The outgrowth of the peptidergic **neurons** could be restrained in the Ca-free medium and blocked by Cd2+ (Cd2+ current blocker) in the medium. Three types of neurosecretory **cells** were distinguished on the basis of size, **morphology**, distribution, form of outgrowth and ultrastructure. There is an ultrastructural evidence that B, C types of neurosecretory **cells** have a rest phase in the development of Eriocheir sinensis.

L3 ANSWER 5 OF 28 MEDLINE DUPLICATE 4
ACCESSION NUMBER: 2000282754 MEDLINE
DOCUMENT NUMBER: 20282754 PubMed ID: 10824670
TITLE: Differential induction of gene expression by basic fibroblast growth factor and neuroD in cultured retinal pigment epithelial cells.
AUTHOR: Yan R T; Wang S Z
CORPORATE SOURCE: Department of Ophthalmology, University of Alabama at Birmingham School of Medicine, USA.
CONTRACT NUMBER: EY11640 (NEI)
SOURCE: VISUAL NEUROSCIENCE, (2000 Mar-Apr) 17 (2) 157-64.
Journal code: AYS; 8809466. ISSN: 0952-5238.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200007
ENTRY DATE: Entered STN: 20000728
Last Updated on STN: 20000728
Entered Medline: 20000718
AB Embryonic chick retinal pigment epithelial (RPE) **cells** can undergo transdifferentiation upon appropriate stimulation. For example, basic fibroblast growth factor (bFGF) induces intact RPE tissue younger than embryonic. . . to transdifferentiate into a neural retina. NeuroD, a gene encoding a basic helix-loop-helix transcription factor, triggers de novo production of **cells** that resemble young photoreceptor **cells** morphologically and express general **neuron** markers (HNK-1/N-CAM and MAP2) and a photoreceptor-specific marker (visinin) from **cell cultures** of dissociated E6 RPE (Yan & Wang, 1998). The present study examined whether bFGF will lead to the same

transdifferentiation phenomenon as neuroD when applied to dissociated, cultured E6 RPE **cells**, and whether interplay exists between the two factors under the **culture conditions**. Dissociated E6 RPE **cells** were cultured in the presence or absence of bFGF, and with or without the addition of retrovirus expressing neuroD. Gene.

. expression of visinin, or HNK-1/N-CAM and MAP2. However, bFGF elicited the expression of RA4 immunogenicity; yet, many of these RA4-positive **cells** lacked a neuronal **morphology**. Addition of bFGF to neuroD-expressing **cultures** did not alter the number of visinin-expressing **cells**; misexpression of neuroD in bFGF-treated **cultures** did not **change** the number of RA4-positive **cells**, suggesting the absence of interference or synergistic interaction between the two factors. Our data indicated that bFGF and neuroD induced the expression of different genes in cultured RPE **cells**.

L3 ANSWER 6 OF 28 MEDLINE DUPLICATE 5
ACCESSION NUMBER: 2000119572 MEDLINE
DOCUMENT NUMBER: 20119572 PubMed ID: 10654076
TITLE: Quantitative morphological analysis of embryonic cockroach (Periplaneta americana) brain neurons developing in vitro.
AUTHOR: Angevin V; Salecker I; Vaillant C; Le Guen J; Branchereau P; Tiaho F; Van Eyseren I; Pichon Y
CORPORATE SOURCE: Groupe de Neurobiologie, Equipe C.R.M., UPRESA-6026 CNRS, Universite de Rennes 1, France.
SOURCE: CELL AND TISSUE RESEARCH, (2000 Jan) 299 (1) 129-43. Journal code: CQD; 0417625. ISSN: 0302-766X.
PUB. COUNTRY: GERMANY: Germany, Federal Republic of
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200002
ENTRY DATE: Entered STN: 20000229
Last Updated on STN: 20000229
Entered Medline: 20000215

AB **Neurons** dissociated from the brain of embryonic cockroaches (Periplaneta americana) can be maintained in **culture** for several weeks. The survival as well as the progressive organization of the **neurons** into a complex network was studied during a 5-week period under different **culture conditions**. About 10% of the dissociated **cells** adhered to the **culture** dish. This figure remained constant throughout the **culture**. The **cell** diameter ranged from 10 to 20 microns and did not **change** significantly over time in **culture**. Whereas only a few **cells** exhibited neurites at the start of the **culture**, the number of **cells** exhibiting neurites increased to reach about 99% after 2 weeks. The different **cells** were then connected to each other, forming a network, which became more and more complex. The number of **cells** per cluster as well as the length and the diameter of the "connectives" that linked the different clusters were found to increase with time. The **morphology** of individual **neurons** within the network was visualized after intracellular injection of biocytin. Labeling with antibodies raised against serotonin or GABA indicated that **neurons** were able to differentiate and to acquire specific neurotransmitter fates. The serotonergic phenotype was found to appear progressively throughout the **culture**, in parallel with the formation of the network. **Cell** density, addition of fetal calf serum, and ecdysone were shown to influence the development of the network.

L3 ANSWER 7 OF 28 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 2001:75668 BIOSIS
DOCUMENT NUMBER: PREV200100075668
TITLE: Nitric oxide mediated injury of neuronal cortical

mitochondria and the initiation of cell death.
AUTHOR(S): Solenski, N. J. (1); Periasamy, A.
CORPORATE SOURCE: (1) Univ Virginia Hlth System, Charlottesville, VA USA
SOURCE: Society for Neuroscience Abstracts, (2000) Vol. 26, No. 1-2, pp. Abstract No.-87.2. print.
Meeting Info.: 30th Annual Meeting of the Society of Neuroscience New Orleans, LA, USA November 04-09, 2000 Society for Neuroscience
. ISSN: 0190-5295.
DOCUMENT TYPE: Conference
LANGUAGE: English
SUMMARY LANGUAGE: English
AB NO has known toxic effects on CNS **neurons**; under ischemic **conditions** neurotoxicity may involve energy depletion of mitochondria. The main hypothesis is that neuronal mitochondria are a major target for NO mediated damage after ischemia and this injury initiates a "**cell** death signal". Primary isolated rat cortical neuronal **cultures** (10-14d) were exposed to increasing physiologically relevant doses of a NO generator for 0-6 hrs. Using fluorescent confocal microscopy and triple labeling with JC-1 or TMRM, calcein AM and propidium iodide, **changes** in mitochondrial membrane potential (DELTAPSI) and the ratio of live/dead **neurons** were evaluated. The effect of adding cyclosporin A (CsA), and protonophores was also studied. "Apoptotic" **cell** death was semi-quantitatively analyzed by examining DNA **morphology**. NO exposure resulted in a concentration dependent increase in **cell** death. At higher concentrations of NO, DNA condensation was seen in > 90% of the surviving **cells** and mitochondrial DELTAPSI significantly and acutely decreased within **neurons**; lower concentrations provoked a heterogeneous **change** in DELTAPSI. Pre- and co-incubation with CsA may mitigate the effects of NO (trend). Exogenous NO kills cultured neuronal cortical **cells** in a concentration dependent manner and lowers or abolishes neuronal mitochondrial DELTAPSI. Results suggest that the extent of NO-induced mitochondrial. . .

L3 ANSWER 8 OF 28 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 2001:134485 BIOSIS
DOCUMENT NUMBER: PREV200100134485
TITLE: Effects of VEGF on nonendothelial cells in neonatal cortical explants.
AUTHOR(S): Khaibullina, A. A. (1); Tadvalkar, G.; Martinka, D.; Krum, J. J.
CORPORATE SOURCE: (1) George Washington University Medical Center, Washington, DC USA
SOURCE: Society for Neuroscience Abstracts, (2000) Vol. 26, No. 1-2, pp. Abstract No.-792.15. print.
Meeting Info.: 30th Annual Meeting of the Society of Neuroscience New Orleans, LA, USA November 04-09, 2000 Society for Neuroscience
. ISSN: 0190-5295.
DOCUMENT TYPE: Conference
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Vascular endothelial growth factor (VEGF) is presumed to be a specific endothelial **cell** mitogen. However, the presence of VEGF receptors on astrocytes and **neurons** suggests that it might affect these **cell** types as well. To test this hypothesis, we examined **changes** in **morphology** and expression of different markers in **neurons**, astrocytes and microglia in neonatal (P0, P3, P6, and P10) rat cortical explants, incubated for three days with VEGF165 (1, 10, 25, 50 and 100 ng/ml) under serum-free **culture conditions**. Explants were either fixed with paraformaldehyde for immunohistochemistry, or frozen for RT-PCR analysis. PCNA antibody was used to determine the. . . angiogenic response. There
was an increase in the number of reactive-appearing astrocytes in all

VEGF-treated explants. Microglia showed no detectable **changes** in PI (lectin/PCNA), number or **morphology** in response to VEGF. Map-2 (+) neuronal processes in VEGF-treated explants did not show marked difference in thickness and length,. . . ng/ml VEGF while Flt-1 mRNA peaked at 50 ng/ml. These data suggest that VEGF's actions are not restricted to endothelial **cells**, but also affect astrocytes and **neurons** during development. Whether this effect is direct or mediated is subject to further studies.

L3 ANSWER 9 OF 28 MEDLINE DUPLICATE 6
ACCESSION NUMBER: 1998424122 MEDLINE
DOCUMENT NUMBER: 98424122 PubMed ID: 9753200
TITLE: Calcium-induced activation of the mitochondrial permeability transition in hippocampal neurons.
AUTHOR: Dubinsky J M; Levi Y
CORPORATE SOURCE: Department of Physiology, University of Minnesota Medical School, Minneapolis 55455, USA..
dubin001@maroon.tc.umn.edu
CONTRACT NUMBER: AG10034 (NIA)
SOURCE: JOURNAL OF NEUROSCIENCE RESEARCH, (1998 Sep 15) 53 (6) 728-41.
Journal code: KAC; 7600111. ISSN: 0360-4012.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199812
ENTRY DATE: Entered STN: 19990115
Last Updated on STN: 19990115
Entered Medline: 19981222

AB The mitochondrial permeability transition (mPT) has been implicated in both excitotoxic and apoptotic neuronal **cell** death, despite the fact that it has not been previously identified in **neurons**. To study the mPT in hippocampal **neurons**, **cultures** were loaded with the mitochondrial dye JC-1 and observed with confocal and conventional microscopy. After pretreatment with 4Br-A23187 and subsequent calcium addition, the initially rodlike mitochondria increased in diameter until mitochondria became rounded in appearance. Morphological **changes** reversed when calcium was removed by EGTA. When **neurons** were loaded with both fura-2-AM and rhodamine 123, calcium loading produced an increase in cytosolic calcium, mitochondrial depolarization, and similar alterations in mitochondrial **morphology**. Smaller calcium challenges produced calcium cycling, delaying morphological **changes** until after secondary depolarization and calcium release to the cytosol. In **neurons** exposed to glutamate, confocal observation of JC-1 fluorescence revealed comparable **changes** in mitochondrial **morphology** that were prevented when barium was substituted for calcium, or following pretreatment with the mPT inhibitor, cyclosporin A. These experiments establish **conditions** in which the mPT could be observed in situ in **neurons** in response to calcium loading. In addition, the timing of **changes** suggested that induction of the permeability transition in situ represents a sequence of multiple events that may reflect the multiple. . .

L3 ANSWER 10 OF 28 MEDLINE
ACCESSION NUMBER: 1998396967 MEDLINE
DOCUMENT NUMBER: 98396967 PubMed ID: 9728766
TITLE: Induction of resting microglia in culture medium devoid of glycine and serine.
AUTHOR: Tanaka J; Toku K; Matsuda S; Sudo S; Fujita H; Sakanaka M; Maeda N
CORPORATE SOURCE: Department of Physiology, School of Medicine, Ehime University, Japan.. jtanaka@m.ehime-u.ac.jp

SOURCE: GLIA, (1998 Oct) 24 (2) 198-215.
Journal code: GLI; 8806785. ISSN: 0894-1491.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199811
ENTRY DATE: Entered STN: 19990115
Last Updated on STN: 19990115
Entered Medline: 19981130

AB Cultured microglial **cells** usually exhibit ameboid **morphology** and peripheral macrophage-like properties, which are distinct from those observed in the normal mature brain. This might be caused by the inappropriate **culture** of microglial **cells** in high concentrations (approximately 200-400 microM) of Gly and Ser, although the concentrations of the amino acids in extracellular spaces.
.
. 5 microM). In the present study, we focused on the concentration-dependent effects of glycine (Gly) and serine (Ser) on microglial **morphology** and function. Under Gly/Ser-free and serum-free **condition**, the majority of rat microglial **cells** displayed round **morphology**, whereas in the presence of 5 microM Gly and 25 microM Ser, which correspond to the concentrations of Gly and. . . multiple branched processes and formed clusters of rough endoplasmic reticulum. On the other hand, Gly and Ser did not affect **morphology** of astrocytes. The viability of microglia was not affected by the **changes** in the concentrations of Gly and Ser. Metabolic activity, activities of acid phosphatase and inducible nitric oxide synthase, and superoxide. . . amino acids. Such activities were all enhanced in harmony with increases in the concentrations of Gly and Ser. Thus, microglial **cells** cultured in Gly/Ser-free medium, even though exhibiting ameboid **morphology**, appears to be in the functionally resting state. Furthermore, once the resting state was achieved, the microglial **cells** remained inactive even after the subsequent 24 h **culture** in serum-supplemented medium containing 400 microM of both amino acids. The medium conditioned by microglial **cells** that were cultured in the presence of 400 microM of Gly and Ser was toxic to cortical **neurons**, whereas the microglia-conditioned medium obtained in the absence of both amino acids facilitated the survival of cortical **neurons**. Therefore, microglial **cells** in the resting state, which was induced in the Gly/Ser-free **condition**, are likely to support **neurons**. Microglial **cells** could ramify on glass coverslips coated with astrocyte-derived extracellular matrix or on coverslips coated thinly with fibronectin and/or laminin even under the Gly/Ser-free **condition**. The ramified **cells** as induced in this way kept suppressed O2- generating activity. These findings suggest that resting ramified microglial **cells** with a neurotrophic activity can be induced with the combination of Gly/Ser-free medium and small amounts of extracellular matrix proteins,. . .

L3 ANSWER 11 OF 28 MEDLINE DUPLICATE 7
ACCESSION NUMBER: 97231651 MEDLINE
DOCUMENT NUMBER: 97231651 PubMed ID: 9076963
TITLE: Comparison of Ca2+ currents of peptidergic neurons developing differing morphology with time in culture.
AUTHOR: Meyers D E; Cooke I M
CORPORATE SOURCE: Department of Zoology, University of Hawaii, Honolulu 96822, USA.
CONTRACT NUMBER: RO1 NS15453 (NINDS)
SOURCE: JOURNAL OF EXPERIMENTAL BIOLOGY, (1997 Feb) 200 (Pt 4) 723-33.
Journal code: I2F; 0243705. ISSN: 0022-0949.
PUB. COUNTRY: ENGLAND: United Kingdom

Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199704
ENTRY DATE: Entered STN: 19970507
Last Updated on STN: 19970507
Entered Medline: 19970428

AB The whole-**cell** patch-clamp technique was used to examine Ca2+ currents (ICa) in mature **neurons** cultured in defined medium and derived from the principal neurosecretory system of decapod crustaceans, the X-organ-sinus gland. After 1 day in **culture**, X-organ **neurons** of the crab Cardisoma carnifex showed vigorous outgrowth characterized either by the production of broad lamellipodia (veils) or, from smaller somata, a branching **morphology**. The **neurons** developing veils (veilers) had a large ICa (approximately 650 pA) and ICa current density (approximately 5 microA cm-2) while other types of **neuron** had little or no ICa. This distinction between the two types was still present after 5-6 days in **culture**. However, **morphologies** observed after additional outgrowth, when correlated with the ICa responses, allowed four groups to be distinguished: (1) veilers and (2). . . similar ICa density (approximately 3 microA cm-2); and, developing from the 1 day branchers, (3) spiny branchers or (4) small **cells** (ICa density approximately 0.8 microA cm-2). Immunoreactivity indicative of the presence of crustacean hyperglycemic hormone was found in all veilers and branching veilers tested, while moltinhibiting hormone reactivity, when observed, was seen in **cells** having a robust ICa density (> or = 1.2 microA cm-2). Normalized average current-voltage curves for each morphological group were examined for **changes** with increasing time in **culture**. The curves were consistent with the ICa being produced by a population of high-voltage-activated Ca2+ channels whose properties are biophysically indistinguishable and unaffected by time in **culture**. The averaged peak current did not **change**, despite an increase in neuronal surface area as outgrowth proceeded, and this resulted in a reduction of ICa density. This indicated that net addition of Ca2+ channels did not match the addition of new membrane under our culturing **conditions**.

L3 ANSWER 12 OF 28 MEDLINE DUPLICATE 8
ACCESSION NUMBER: 97009639 MEDLINE
DOCUMENT NUMBER: 97009639 PubMed ID: 8856744
TITLE: Characterization of the morphological variations of astrocytes in culture following ethanol exposure.
AUTHOR: Barret L; Soubeyran A; Usson Y; Eysseric H; Saxod R
CORPORATE SOURCE: Laboratoire de Neurobiologie du Developpement (Ea Dred 589), Cermo, Universite J. Fourier, Grenoble, France.
SOURCE: NEUROTOXICOLOGY, (1996 Summer) 17 (2) 497-507.
Journal code: OAP; 7905589. ISSN: 0161-813X.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199701
ENTRY DATE: Entered STN: 19970219
Last Updated on STN: 19980206
Entered Medline: 19970129

AB . . . suggested that astrocytes might play an important role as their integrity is essential for the normal growth and functioning of **neurons**. Morphological variations of astrocyte **cultures** were therefore examined after exposure to various doses of ethanol (0.5, 1 and 2%) for different durations (24, 48, 72 and 96 h). The percentage of **cell** viability and the **cell** density were calculated and the **changes** in astrocyte **morphology** were assessed by

an image analysis system (Samba 2005) allowing the characterization of 5 parameters (perimeter, surface, elongation factor, convexity factor and the form factor) of a great number of **cells** (over 6500). This was necessary because of the high variability in normal cultured astrocyte **morphology**. A two-way statistical approach (2-factors ANOVA completed by stepwise discriminant analysis) was adopted to emphasize the differences between control and exposed **cells**. In such **conditions**, ethanol treated **cells** became more elongated, less circular and more concave and did not grow like non-exposed **cells**. The mean pooled values of these parameters tended to be modified as a function of the dose of ethanol. The. . . between parameters clearly separated the groups as a function of the different doses. Finally no significant difference was observed in **cell** viability and **cell** density despite lower scores in the groups exposed to the highest dose of ethanol for the longest time. Our results suggest that ethanol might affect astrocytes in two different but probably complementary ways by modifying the **cell** shape and by altering normal **cell** development.

L3 ANSWER 13 OF 28 MEDLINE DUPLICATE 9

ACCESSION NUMBER: 96119952 MEDLINE
DOCUMENT NUMBER: 96119952 PubMed ID: 8542071
TITLE: Areal differences of NPY mRNA-expressing neurons are established in the late postnatal rat visual cortex in vivo, but not in organotypic cultures.
AUTHOR: Obst K; Wahle P
CORPORATE SOURCE: Fakultat fur Biologie, Lehrstuhl fur Allgemeine Zoologie und Neurobiologie, Ruhr-Universitat, Bochum, Germany.
SOURCE: EUROPEAN JOURNAL OF NEUROSCIENCE, (1995 Oct 1) 7 (10) 2139-58.
Journal code: BYG; 8918110. ISSN: 0953-816X.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199602
ENTRY DATE: Entered STN: 19960227
Last Updated on STN: 19960227
Entered Medline: 19960214

AB In order to learn about the factors regulating the postnatal development of neocortical peptidergic **neuron** populations, we have analysed **neurons** expressing neuropeptide Y (NPY) by immunohistochemistry and in situ hybridization in developing and adult rat visual cortical areas 17 and 18a in vivo, and in organotypic slice **cultures** of rat visual cortex. For quantitative analysis, the percentage of NPY mRNA-expressing **neurons** was determined in supragranular layers I-IV, in infragranular layers V and VI and in the white matter. In vivo, this. . . in visual areas 17 and 18a until postnatal day 21 in supra- and infragranular layers. Initially, in both areas the **neurons** were about equally distributed in supra- and infragranular layers (a ratio of 1:1). During the second postnatal month, the percentage of NPY mRNA-expressing **neurons** in area 18a declined by approximately 50% in both supra- and infragranular layers, so that the ratio of 1:1 remained constant. In contrast, in area 17 the percentage of **neurons** in supragranular layers remained fairly constant, but it declined to 50% in infragranular layers, so that by postnatal day 70 the ratio was gradually shifted to 2:1. Throughout development, area 18a contained significantly more NPY mRNA-expressing **neurons** than area 17. In organotypic slice **cultures**, a high density of NPY mRNA-expressing **neurons** had appeared by 10 days in vitro. A much higher percentage of **neurons** expressed NPY mRNA. The ratio of labelled **neurons** in supra- versus infragranular layers was 1:1. Both ratio and percentage remained constant from 10-85 days in vitro. The

decline in vivo was not caused by an elimination of transient **cell** types. All **cell** types persisted into adulthood. Four NPY peptide-immunoreactive neuronal types were classified by axonal **morphology** in organotypic slice **cultures** and in vivo; they include (i) **cells** in layer VI/white matter with horizontal axons and ascending collaterals, (ii) **cells** in layers V/VI with descending axon and horizontal collaterals, (iii) Martinotti **cells** in layers V/VI with ascending axons, and (iv) **cells** in layers III-V with columnar axons. Two further types, bipolar **cells** with axons descending from dendrites and small basket **cells** with short horizontal axons, both found in vivo in layers II/III, could not be unequivocally identified in organotypic slice **cultures**. The NPY-immunoreactive **neuron** types had already formed a dense innervation of the **cultures** by 10 days in vitro, which remained stable for up to 85 days in vitro, and resembled the innervation observed in vivo. NPY peptide-immunoreactive **neurons** in organotypic slice **cultures** and in vivo were distributed in cortical layers II/III, V and VI and the white matter, but rarely in layers I and IV, which corresponded to the distribution of NPY mRNA-expressing **neurons**. However, with in situ hybridization more **neurons** were detectable, especially in layers II/III. A majority of NPY mRNA-expressing **neurons** co-localized NPY peptide, somatostatin and calbindin. We conclude that intrinsic cues were sufficient to drive the molecular expression of the NPY phenotype, the morphological differentiation and the stabilization of an organotypic NPY innervation in organotypic slice **cultures**. However, the area- and lamina-specific **changes** observed in vivo were not observed under monoculture **conditions**.

L3 ANSWER 14 OF 28 BIOSIS COPYRIGHT 2001 BIOSIS DUPLICATE 10
ACCESSION NUMBER: 1995:318073 BIOSIS
DOCUMENT NUMBER: PREV199598332373
TITLE: Alzheimer's-associated phospho-tau epitope in human neuroblastoma cell cultures: Up-regulation by fibronectin and laminin.
AUTHOR(S): Martin, H.; Lambert, M. P.; Barber, K.; Hinton, S.; Klein, W. L. (1)
CORPORATE SOURCE: (1) Dep. Neurobiol. Physiol., Northwestern Univ., 2153 North Campus Dr., Evanston, IL 60208 USA
SOURCE: Neuroscience, (1995) Vol. 66, No. 4, pp. 769-779. ISSN: 0306-4522.
DOCUMENT TYPE: Article
LANGUAGE: English

AB Alzheimer's-afflicted **neurons** contain phosphorylated forms of tau that are not present in healthy adults. these can be recognized with great specificity by. . . Greenberg S. G. et al. (1992) J. biol. Chem. 267, 564-569). The PHF-1 phospho-tau epitope is also present in immature **neurons** undergoing axodendritic differentiation (Pope W. B. et al. (1993) Expl Neurol. 120, 106-113). Analogous to its presence in immature **neurons**, we report here that the PHF-1 tau epitope spontaneously occurs in the human neuroblastoma **cell** line SHSY5Y, where its level can be regulated by differentiation and by molecules found in the extracellular matrix. Confocal immunofluorescence. . . PHF-1 epitope to be constitutively expressed in the somatic cytoplasm as well as in short neurites typical of undifferentiated SHSY5Y **cells**. Induction of differentiation with retinoic acid produced **cells** with a neuronal **morphology** and a redistribution of the expression of PHF-1 tau in the long neurites. Protracted exposure to retinoic acid decreased the. . . situ. The effects of retinoic acid on PHF-I immunofluorescence were modifiable by fibronectin, which can be released by some neuroblastoma **cell** lines (Ciccarone V. et al. (1989) Cancer Res. 49, 219-225; Yoshihara T. et al. (1992) Int. J. Cancer 51, 620-626.). Exogenous human fibronectin caused a marked up-regulation of PHF-1 immunofluorescence. Quantitative analysis of 15 multicellular areas,

from six different **cultures**, per experimental **condition** showed a 16-fold increase compared to untreated controls. Up-regulation by fibronectin was also evident in undifferentiated **cells**. **Cell** counts indicated no proliferative effects of the fibronectin under the **conditions** used. Laminin also caused an increase of PHF-1 tau in retinoic acid-treated **cells**. Data obtained from immunoblots verified the results observed with immunofluores-cence. The data show that the PHF-1 tau epitope is spontaneously expressed by non-degenerating human neuroblastoma **cells**, down-regulated by cellular differentiation, induced by retinoic acid and up-regulated by the extracellular matrix components fibronectin and laminin. One explanation of the data is that fibronectin maintains a population of SHSY5Y **cells** in a biochemical state of differentiation in which PHF-1 tau is expressed. This effect occurs despite the presence of morphological **changes** accompanying long-term retinoic acid-induced differentiation. This study shows that molecules of the extracellular matrix can regulate the phosphorylation state of tau, increasing expression of an epitope previously linked specifically to axon formation in developing **neurons** and to Alzheimer's neurodegeneration in the adult. We hypothesize, therefore, that extracellular matrix molecules, in their known ability to influence. . .

L3 ANSWER 15 OF 28 MEDLINE DUPLICATE 11
ACCESSION NUMBER: 94244480 MEDLINE
DOCUMENT NUMBER: 94244480 PubMed ID: 7514526
TITLE: Expression of the protein zero myelin gene in axon-related Schwann cells is linked to basal lamina formation.
AUTHOR: Fernandez-Valle C; Fregien N; Wood P M; Bunge M B
CORPORATE SOURCE: Miami Project to Cure Paralysis, Florida.
CONTRACT NUMBER: 5F32NS09006 (NINDS)
NINDS NS09923 (NINDS)
SOURCE: DEVELOPMENT, (1993 Nov) 119 (3) 867-80.
Journal code: ECW; 8701744. ISSN: 0950-1991.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199406
ENTRY DATE: Entered STN: 19940629
Last Updated on STN: 19960129
Entered Medline: 19940620

AB A Schwann **cell** has the potential to differentiate into either a myelinating or ensheathing **cell** depending upon signals received from the axon that it contacts. Studies focusing on the pathway leading to myelination demonstrated that Schwann **cells** must form a basal lamina in order to myelinate an axon. In this report, we describe studies that indicate that initiation of basal lamina synthesis is required for Schwann **cells** to distinguish between myelination-inducing axons and axons that do not induce myelination, and to respond by undergoing the appropriate genetic and cellular **changes**. We have used high resolution in situ hybridization, immunocytochemistry and electron microscopy to examine **changes** in gene expression and **morphology** of Schwann **cells** differentiating into myelin-forming **cells** in vitro. These experiments were carried out in dorsal root ganglion **neuron**/Schwann **cell** co-**cultures** maintained in either serum-free, serum-only or serum-plus-ascorbate-containing medium. We have made four novel observations that contribute significantly to our understanding. . . expression of protein zero mRNA and protein, and its insertion into myelin membranes, occurs only in the subset of Schwann **cells** contacting

myelination-inducing axons. Schwann **cells** in contact with axons that do not induce myelination, or Schwann **cells** that have not established a unitary relationship with an axon, do not express protein zero mRNA although they produce basal lamina components. (2) In serum-free **conditions**, a majority of Schwann **cells** express protein zero mRNA and protein, but this **change** in gene expression is not associated with basal lamina formation or with elongation of the Schwann **cell** along the axon and elaboration of myelin. (3) In the presence of serum (and the absence of ascorbate), Schwann **cells** again fail to form basal lamina or elongate but no longer express protein zero mRNA or protein. (4) Myelin-associated glycoprotein and galactocerebroside, two additional myelin-specific components, can be expressed by Schwann **cells** under any of the three **culture conditions**. Therefore, we have demonstrated that axonal induction of protein zero gene expression in Schwann **cells** is subject to regulation by both serum- and ascorbate-dependent pathways and that not all myelin-specific proteins are regulated in the. . .

L3 ANSWER 16 OF 28 MEDLINE DUPLICATE 12
ACCESSION NUMBER: 92364664 MEDLINE
DOCUMENT NUMBER: 92364664 PubMed ID: 1500946
TITLE: Growth of tumour cell lines in polymer capsules: ultrastructure of encapsulated PC12 cells.
AUTHOR: Jaeger C B; Aebischer P; Tresco P A; Winn S R; Greene L A
CORPORATE SOURCE: Department of Anatomy, Purdue University, School of Veterinary Medicine, West Lafayette, IN 47907.
CONTRACT NUMBER: RO-1 NS27694 (NINDS)
SOURCE: JOURNAL OF NEUROCYTOLOGY, (1992 Jul) 21 (7) 469-80. Journal code: JB3; 0364620. ISSN: 0300-4864.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199209
ENTRY DATE: Entered STN: 19920925
Last Updated on STN: 19970203
Entered Medline: 19920911

AB Recent studies indicate that polymer-encapsulated PC12 **cells** release sufficient amounts of dopamine to significantly alter behavioural paradigms in animals with unilateral lesions of dopaminergic midbrain **neurons**. Because **cell** fine structure provides a useful measure for assessment of storage function, exocytosis, metabolism, **cell** activity and **cell** viability, we examined the ultrastructure of PC12 **cells** grown in semi-permeable polymer capsules maintained in vitro or implanted into the forebrain of rats or guinea pigs. Encapsulated PC12 **cells** remained viable and continued to divide for the entire evaluation period of six months. Overall **morphologies** of encapsulated PC12 **cells** were similar in both environments and they resembled PC12 **cells** grown in monolayer **cultures**. In short-term **cultures**, encapsulated PC12 **cells** typically contained abundant quantities of chromaffin **cell**-like granules. The encapsulated **cells** had initially abundant microvilli on their surfaces which decline in frequency over time. After long-term enclosure for ten weeks or more, fewer secretory granules were detected in the cytoplasm of **cells** in capsules cultured in vitro and in brain-implanted capsules. Some **cells** in implanted capsules had long slender filipodia that were not present on PC12 **cells** in cultured capsules. The morphological **changes** of PC12 **cells** may correlate with altered growth **conditions** such as serum and oxygen concentrations, the presence or absence of growth factors in different environments, and with **changes** of **cell** interactions related to **cell** densities and build up of debris within the capsules over time. Since dopaminergic PC12 pheochromocytoma **cells** remain viable in semi-permeable polymer capsules for at least six months,

such '**cell**-capsules' could provide an alternative to dopamine-secreting embryonic neural grafts in dopamine replacement therapies.

L3 ANSWER 17 OF 28 MEDLINE DUPLICATE 13
ACCESSION NUMBER: 93082751 MEDLINE
DOCUMENT NUMBER: 93082751 PubMed ID: 1451174
TITLE: Peptidergic neurons of the crab, Cardisoma carnifex, in defined culture maintain characteristic morphologies under a variety of conditions.
AUTHOR: Grau S M; Cooke I M
CORPORATE SOURCE: Bekesy Laboratory of Neurobiology, University of Hawai, Honolulu 96822.
CONTRACT NUMBER: G12 RR03061 (NCRR)
R01 NS15453 (NINDS)
SOURCE: CELL AND TISSUE RESEARCH, (1992 Nov) 270 (2) 303-17.
Journal code: CQD; 0417625. ISSN: 0302-766X.
PUB. COUNTRY: GERMANY: Germany, Federal Republic of
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199301
ENTRY DATE: Entered STN: 19930129
Last Updated on STN: 19930129
Entered Medline: 19930107

AB Peptidergic **neurons** dissociated from the neurosecretory **cell** group, the X-organ, of adult crabs (Cardisoma carnifex) show immediate outgrowth on unconditioned plastic dishes in defined medium. Most of the **neurons** can be categorized as small **cells**, branchers or veilers. A fourth type, "superlarge," found occasionally, has a soma diameter greater than 40 microns and multipolar outgrowth. We report here the effects on **morphology** that follow alterations of the standard defined culturing **conditions**. The three common types of **neurons** are present when **cells** are grown in crab saline or saline with L-glutamine and glucose (saline medium). **Changes** of pH between 7.0 to 7.9 have no effect. Osmolarity **changes** cause transient varicosities in small **cells**. In some veilers, pits rapidly appear in the veil and then disappear within 35 min. In **cultures** at 26 degrees C instead of 22 degrees C, veilers extend processes from the initial veil in a pattern similar.

15-110 mM; standard = 11 mM) has no long-term effect, but growth is arrested by [K+]o greater than 30 mM. **Cultures** were also grown in media in which [Ca2+]o ranged from 0.1 microM to 26 mM (standard = 13 mM). Outgrowth occurred from all neuronal types in all [Ca2+]o tested. Thus, the expression of different outgrowth **morphologies** occurs under a wide variety of culturing **conditions**.

QP364
.S94

L3 ANSWER 18 OF 28 MEDLINE DUPLICATE 14
ACCESSION NUMBER: 92367157 MEDLINE
DOCUMENT NUMBER: 92367157 PubMed ID: 1354396
TITLE: Membrane properties of identified mesencephalic dopamine neurons in primary dissociated cell culture.
AUTHOR: Chiodo L A; Kapatos G
CORPORATE SOURCE: Department of Psychiatry, Wayne State University School of Medicine, Detroit, Michigan 48201.
CONTRACT NUMBER: MH-41557 (NIMH)
NS-26081 (NINDS)
SOURCE: SYNAPSE, (1992 Aug) 11 (4) 294-309.
Journal code: VFL; 8806914. ISSN: 0887-4476.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals

ENTRY MONTH: 199209
ENTRY DATE: Entered STN: 19920925
Last Updated on STN: 19970203
Entered Medline: 19920914

AB Dopamine (DA)-containing **neurons** in primary dissociated **cell cultures** derived from the embryonic mouse mesencephalon (day E13) were studied by histochemical and electrophysiological techniques. DA **neurons** exhibited two distinct **morphologies**, fusiform and multipolar, tended to reside in groups and organize dendrites into common fascicles. While these **neurons** expressed the **cell**-surface marker acetylcholinesterase, the presence of this enzyme could not be used to identify DA **neurons** unequivocally, since it was also observed in nondopaminergic **cells**. **Neurons** were therefore identified as DA by their distinct **morphology**, and this identification was validated with a double-labeling procedure that entailed the intracellular deposition of a fluorescent dye (Lucifer yellow or ethidium bromide), followed by processing for tyrosine hydroxylase immunocytochemistry. DA **neurons** identified in this manner were observed to have resting membrane potentials between -50 and -75 mV, input resistances of 50-360 M omega, and membrane time constants of 4.1-14.1 msec. Forty-seven percent of these **cells** displayed spontaneous activity that was irregular in nature and often contained bursts (burst length was between two and six action potentials). The DA **neurons** displayed a variety of ionic conductances, including (1) a Na+ conductance (gNa) that underlies the action potential, (2) Ca2+ conductances. . . Ca(2+)-dependent and was not affected by tetraethylammonium ions. This current was termed IAHP. The remaining current was not sensitive to **changes** in the extracellular Ca2+ concentration but was blocked by external tetraethylammonium. This current was termed IK. The direct pressure application of DA (1-200 microM) onto the soma dose-dependently hyperpolarized these **neurons**; this effect was potentiated by the presence of the catecholamine reuptake blocker cocaine hydrochloride (10-200 microM). Under voltage-clamp **conditions**, DA was observed to increase IK significantly and had little effect on IAHP.(ABSTRACT TRUNCATED AT 400 WORDS)

L3 ANSWER 19 OF 28 MEDLINE DUPLICATE 15
ACCESSION NUMBER: 92370419 MEDLINE
DOCUMENT NUMBER: 92370419 PubMed ID: 1354562
TITLE: The effect of hypoxia on neurotransmitter phenotype of forebrain cholinergic neurons.
AUTHOR: Flavin M P; Yang Y; Riopelle R J
CORPORATE SOURCE: Department of Pediatrics, Queen's University, Kingston, Ont., Canada.
SOURCE: BRAIN RESEARCH, (1992 Jun 26) 583 (1-2) 201-6.
Journal code: B5L; 0045503. ISSN: 0006-8993.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199209
ENTRY DATE: Entered STN: 19921009
Last Updated on STN: 19980206
Entered Medline: 19920918

AB The effect of hypoxia on the neurotransmitter phenotype of rat forebrain cholinergic **neurons** was analyzed using a dissociated fetal rat **culture** system. The aims of this study were to examine the feasibility of using choline acetyltransferase (ChAT) activity as a measure of **cell** injury and/or recovery, to measure the time course of hypoxic effects on ChAT activity, to determine how **changes** in ChAT activity at 48 h post-injury relate to microscopic **changes** and LDH release into the medium during that time, and

finally to explore the possible mechanisms of hypoxic injury in this model. At exposure to 0.5-1.5% O2 there was a time-dependent decrease in ChAT activity when **cells** were harvested 48 h after exposure. Forty-eight hours after 8-9 h hypoxic exposure ChAT activity was 50-60% that of controls without any alteration in **morphology** of **neurons**. An 8 h exposure to hypoxic **conditions** caused a post-exposure time-dependent decrease in ChAT activity to 20% of control level at 72 h. Thereafter there was spontaneous. . . 5 and 7 days post-exposure. Loss of neurotransmitter phenotype was not well correlated with other measures of cytotoxicity including morphological **changes** and LDH release. The loss of phenotype observed with hypoxia was mimicked by glutamate and kainate but not by NMDA. Consistent with these observations, neither APV nor AP3 significantly altered the effect of hypoxia on forebrain cholinergic **neurons**, while the addition of APV and CNQX in combination protected the phenotype of these **neurons** only if there was 50% or less loss of phenotype following hypoxia.(ABSTRACT TRUNCATED AT 250 WORDS)

L3 ANSWER 20 OF 28 MEDLINE DUPLICATE 16
ACCESSION NUMBER: 92005766 MEDLINE
DOCUMENT NUMBER: 92005766 PubMed ID: 1717168
TITLE: Repression of integrin beta 1 subunit expression by antisense RNA.
AUTHOR: Hayashi Y; Iguchi T; Kawashima T; Bao Z Z; Yacky C; Boettiger D; Horwitz A F
CORPORATE SOURCE: Biochemical Research Institute, Morinaga Milk Ind. Co. Ltd., Kanagawa, Japan.
SOURCE: CELL STRUCTURE AND FUNCTION, (1991 Jun) 16 (3) 241-9. Journal code: CSF; 7608465. ISSN: 0386-7196.
PUB. COUNTRY: Japan
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199111
ENTRY DATE: Entered STN: 19920124
Last Updated on STN: 19960129
Entered Medline: 19911120

AB A quail **cell** line (QT6-c) was co-transfected with pTEX vector expressing RNA complementary to chicken integrin beta 1 subunit mRNA (Anti-Int) and pRSVneo. . . immunoblot analyses revealed that the Anti-Int caused a clear reduction of the transcript encoding integrin beta
1 subunit depending on **culture conditions**. The number of **cell** surface integrins also decreased in proportion to the decrement of the total amount of integrin beta 1 subunits. When one transfectant (QA23) was cultured in a serum-free medium, **cell** shape changed from fibroblast-like to **neuron**-like **morphology** accompanied by a low growth rate, and the **cells** did not form focal contact on fibronectin. A similar morphological **change** occurred in QT6-c **cells** when the **cells** were infected with Rous Sarcoma virus, which could produce the Anti-Int. The QA23 **cells** did not attach to fibronectin as efficiently as did the original QT6-c **cells**. These data suggest that reduced expression of integrin beta 1 subunit affects **cell** growth as well as **cell morphology** by disordering the interaction between integrins and matrix proteins and/or cytoplasmic proteins.

L3 ANSWER 21 OF 28 MEDLINE DUPLICATE 17
ACCESSION NUMBER: 90218029 MEDLINE
DOCUMENT NUMBER: 90218029 PubMed ID: 2109041
TITLE: Further characterization of scrapie replication in PC12 cells.
AUTHOR: Rubenstein R; Scalici C L; Papini M C; Callahan S M; Carp R
I
CORPORATE SOURCE: Department of Virology, New York State Office of Mental

Retardation and Developmental Disabilities, Staten Island 10314.
CONTRACT NUMBER: R29 NS25308 (NINDS)
RO1 NS21349 (NINDS)
SOURCE: JOURNAL OF GENERAL VIROLOGY, (1990 Apr) 71 (Pt 4) 825-31.
Journal code: I9B; 0077340. ISSN: 0022-1317.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199005
ENTRY DATE: Entered STN: 19900622
Last Updated on STN: 19970203
Entered Medline: 19900521

AB The rat pheochromocytoma **cell** line, PC12, undergoes **neuron**-like morphological, biochemical and electrophysiological differentiation, in the presence of low concentrations of nerve growth factor (NGF). NGF-treated PC12 **cells** have been shown previously to support 139A scrapie agent replication. In the present report we extended these findings and analysed the cellular **conditions** necessary for agent replication. Following the infection of differentiated PC12 **cells**, scrapie replicated to relatively high titres as determined by an incubation period assay. The removal of NGF, which causes the gradual dedifferentiation of PC12 **cells**, resulted in the inability of scrapie to replicate. The scrapie infectivity detected in PC12 **cultures** is **cell**-associated and not released into the medium. **Cells** in infected **cultures** did not show any **change** in **morphology** when compared to **cells** in mock-infected **cultures**. Titration studies of scrapie infectivity in PC12 **cells** have indicated that up to 4 LD50 units per **cell** can be obtained although a yield of 1 LD50 per **cell** was more common. Using an approximate m.o.i. of 1, only differentiated PC12 **cells** supported 139A scrapie agent replication when compared to two other differentiated, neuronal **cell** types, indicating that PC12 **cells** are more susceptible to agent replication. These studies support further the suitability of using differentiated PC12 **cells** as an in vitro model to study scrapie agent replication.

L3 ANSWER 22 OF 28 MEDLINE
ACCESSION NUMBER: 91034080 MEDLINE
DOCUMENT NUMBER: 91034080 PubMed ID: 1977700
TITLE: Increased glutamate uptake and glutamine synthetase activity in neuronal cell cultures surviving chronic hypoxia.
AUTHOR: Sher P K; Hu S X
CORPORATE SOURCE: Department of Neurology, University of Minnesota Medical School, Minneapolis 55455.
SOURCE: GLIA, (1990) 3 (5) 350-7.
Journal code: GLI; 8806785. ISSN: 0894-1491.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199012
ENTRY DATE: Entered STN: 19910208
Last Updated on STN: 19950206
Entered Medline: 19901206

AB To examine the neurochemical effects of chronic hypoxia on immature nervous tissue in vitro, mixed neuronal-glial **cell** **cultures** derived from fetal mice were exposed to 5% O2 for 24 or 48 h. Those **cultures** subjected to longer hypoxia manifested improved neuronal survival compared to those with the shorter insult, both

with respect to neuronal **morphology** and also **cell** counts. Neurochemical assays were performed on living **cells** in situ to determine the possible basis for differential **cell** survival. After both exposure **conditions**. Ro5-4864-displaceable benzodiazepine (BDZ) binding, reflecting nonneuronal BDZ binding sites, was either not reduced or was elevated. Although initially reduced, binding. . . to control values (121 and 128% of controls, P less than 0.05). The most impressive neurochemical differences between the two **conditions** related to **changes** in the predominantly or exclusively glial functions of glutamate uptake and glutamine synthetase activity. In those **cultures** with relatively preserved neuronal **morphology**: 1) high affinity uptake of glutamate was elevated compared to the shorter hypoxic insult by 3 days of recovery (104. . . control values (148%, P less than 0.001). These data suggest that longer periods of hypoxia may be less deleterious to **neurons** than shorter hypoxic events because of a time-dependent stimulation of specific glial **cell** functions which relate to increased metabolism of potentially neurotoxic EAAs such as glutamate.

L3 ANSWER 23 OF 28 MEDLINE DUPLICATE 18
ACCESSION NUMBER: 89209218 MEDLINE
DOCUMENT NUMBER: 89209218 PubMed ID: 2495870
TITLE: Age-dependent changes in the capacity of rat sympathetic neurons to form dendrites in tissue culture.
AUTHOR: Bruckenstein D; Johnson M I; Higgins D
CORPORATE SOURCE: Department of Pharmacology, School of Medicine, State University of New York, Buffalo 14214.
CONTRACT NUMBER: GM 07145 (NIGMS)
NS 22126 (NINDS)
SOURCE: BRAIN RESEARCH. DEVELOPMENTAL BRAIN RESEARCH, (1989 Mar 1) 46 (1) 21-32.
Journal code: DBR; 8908639. ISSN: 0165-3806.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198905
ENTRY DATE: Entered STN: 19900306
Last Updated on STN: 19970203
Entered Medline: 19890526

AB We compared the ability of prenatal and postnatal rat sympathetic **neurons** to form dendrites in tissue **culture**. Dendrites were distinguished from axons by light microscopic criteria after intracellular dye injection and by differential immunostaining with antibodies to. . . non-phosphorylated and phosphorylated forms of the M and H neurofilament subunits. When maintained in the absence of serum and non-neuronal **cells**, most (72%) prenatal **neurons** were unipolar and had only an axon. In contrast, most (89%) **neurons** derived from postnatal ganglia were multipolar and extended both axons and dendrites. The dendritic **morphology** of postnatal **neurons** was usually simple with **cells** commonly having 2-5 short (50-200 microns), relatively unbranched dendrites. Thus, as the development of the dendritic arbor progresses in situ, sympathetic **neurons** acquire an enhanced ability to extend dendrites in tissue **culture**. To determine whether **changes** in the capacity to develop dendrites might occur with aging in vitro, ganglia were removed from prenatal rats and grown as explants for 3 weeks in the presence of non-neuronal **cells**; under these **conditions**, prenatal **neurons** within the explant became multipolar. When **neurons** derived from aged explants were subsequently maintained in dissociated **cell culture**, most formed dendrites. In **cultures** treated with an antimitotic agent, **neurons** typically had 1-4 unbranched

dendrites; greater amounts of dendritic growth occurred in **cultures** in which ganglionic non-neuronal **cells** were allowed to proliferate. We conclude that: (1) the acquisition of the capacity to form dendrites in dissociated **cell culture** does not require either normal afferent input or physical contact with the target tissue; and (2) even after aging in vitro, sympathetic **neurons** remain responsive to the dendrite-promoting activity of ganglionic non-neuronal **cells**.

L3 ANSWER 24 OF 28 MEDLINE DUPLICATE 19
ACCESSION NUMBER: 88284072 MEDLINE
DOCUMENT NUMBER: 88284072 PubMed ID: 3294060
TITLE: Morphological differentiation of embryonic rat sympathetic neurons in tissue culture. I. Conditions under which neurons form axons but not dendrites.
AUTHOR: Bruckenstein D A; Higgins D
CORPORATE SOURCE: Department of Pharmacology and Therapeutics, School of Medicine, State University of New York, Buffalo 14214.
CONTRACT NUMBER: GM 07145 (NIGMS)
NS 22126 (NINDS)
SOURCE: DEVELOPMENTAL BIOLOGY, (1988 Aug) 128 (2) 324-36.
Journal code: E7T; 0372762. ISSN: 0012-1606.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198809
ENTRY DATE: Entered STN: 19900308
Last Updated on STN: 19970203
Entered Medline: 19880902

AB We have examined the **morphology** of fetal rat sympathetic **neurons** grown in serum-free medium in the absence of nonneuronal **cells**. Because **cell** density can affect phenotypic expression in vitro, the morphological analysis was subdivided into the study of isolated **neurons** (**neurons** whose somata were at least 150 micron from their nearest neighbor) and of more highly aggregated **neurons**. When isolated **neurons** were injected with intracellular markers, it was found that most (79%) had a single process emanating from their somata and that this unipolar state persisted for at least 8 weeks in vitro. The processes of unipolar sympathetic **neurons** had the appearance of axons in that they were thin and long, had a constant diameter, and were relatively unbranched.. . . neurofilament subunit; and (3) they contained only small amounts of RNA as determined by [3H]uridine autoradiography. These data indicate that **neurons** which normally form dendrites in vivo need not express this capacity in vitro and that axonal and dendritic growth can be dissociated under some **conditions** in **culture**. While most isolated **neurons** were unipolar, **neurons** in regions of high neuronal **cell** density were usually multipolar. In addition to axons, multipolar **neurons** had processes with some of the characteristics expected of rudimentary dendrites: they ended locally (usually within 100 micron), were often. . . an antibody to nonphosphorylated forms of the M and H neurofilament subunits. The effects of density were most prominent when **neurons** were within aggregates in which the somata were in close apposition. Density-dependent **changes** in **morphology** were less frequently observed when neuronal somata were separated by greater distances (30-100 micron). These data indicate that the **morphology** of sympathetic **neurons** is subject to environmental regulation and that **neuron-neuron** interactions can promote the extension of rudimentary dendrites in vitro.

L3 ANSWER 25 OF 28 MEDLINE DUPLICATE 20
ACCESSION NUMBER: 88066199 MEDLINE
DOCUMENT NUMBER: 88066199 PubMed ID: 3683736

TITLE: Rapid regulation of neuronal growth cone shape and surface morphology by nerve growth factor.
AUTHOR: Connolly J L; Seeley P J; Greene L A
CORPORATE SOURCE: Department of Pathology, Beth Israel Hospital, Boston, MA.
CONTRACT NUMBER: AM26920 (NIADDK)
NS16036 (NINDS)
SOURCE: NEUROCHEMICAL RESEARCH, (1987 Oct) 12 (10) 861-8.
Journal code: NX9; 7613461. ISSN: 0364-3190.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198801
ENTRY DATE: Entered STN: 19900305
Last Updated on STN: 19970203
Entered Medline: 19880119

AB Scanning electron microscopy was used to study regulation of growth cone shape and surface **morphology** by nerve growth factor (NGF). The growth cones of cultured rat sympathetic **neurons** and neuronally-differentiated PC12 **cells** were observed under **conditions** of continuous NGF exposure, NGF withdrawal, and NGF readdition. Growth cones of **cells** cultured in the continuous presence of NGF were mostly spread in shape and about 60% possessed surface ruffles. Ruffles appeared to be largely restricted to growth cones in that few were observed on **cell** bodies and neurites. Withdrawal of NGF for 4-5 hr caused most of the growth cones to take on a non-spread or contracted appearance and to lose their ruffles. Readdition of NGF promoted rapid **changes** in growth cone properties. Within 30 sec, ruffling was again evident on the growth cones and remained prominent there throughout the course of treatment (up to 5 hr). This was in contrast to **cell** bodies on which, as previously reported, ruffling also occurred following NGF readdition, but only transiently (for less than 15 min). Respreading of growth cones also occurred under these **conditions**. This was evident within 1 min of NGF readdition and reached the levels observed in continuously-treated **cultures** within 1-2 hr. Neurites were also examined. Ruffles were only rarely present in the continuous presence of NGF and were. . . NGF readdition elicited ruffling along neurites within 30 sec; the prevalence of such ruffles diminished to that seen in continuously-treated **cultures** within about an hour.(ABSTRACT TRUNCATED AT 250 WORDS)

L3 ANSWER 26 OF 28 MEDLINE DUPLICATE 21
ACCESSION NUMBER: 87109459 MEDLINE
DOCUMENT NUMBER: 87109459 PubMed ID: 3805124
TITLE: Changes in the number of chick ciliary ganglion neuron processes with time in cell culture.
AUTHOR: Role L W; Fischbach G D
CONTRACT NUMBER: F32NS06710 (NINDS)
NS-18458 (NINDS)
SOURCE: JOURNAL OF CELL BIOLOGY, (1987 Feb) 104 (2) 363-70.
Journal code: HMV; 0375356. ISSN: 0021-9525.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198703
ENTRY DATE: Entered STN: 19900303
Last Updated on STN: 19970203
Entered Medline: 19870311

AB The purpose of this study was to describe the shape of chick ciliary ganglion **neurons** dissociated from embryonic day 8 or 9 ganglia and maintained in vitro. Most of the **neurons** were multipolar during the first three days after plating, with an average of 6.0

processes extending directly from the **cell** body. The **neurons** became unipolar with time. The remaining primary process accounted for greater than 90% of the total neuritic arbor. This striking **change** in **morphology** was not due to the selective loss of multipolar **cells**, or to an obvious decline in the health of apparently intact **cells**. The retraction of processes was neither prevented nor promoted by the presence of embryonic muscle **cells**. Process pruning occurred to the same extent and over the same time course whether the **cells** were plated on a monolayer of embryonic myotubes or on a layer of lysed fibroblasts. Process retraction is not an inevitable consequence of our **culture conditions**. Motoneurons dissociated from embryonic spinal cords remained multipolar over the same period of time. We conclude that ciliary ganglion **neurons** breed true in dissociated **cell culture** in that the multipolar-unipolar transition reflects their normal, in vivo, developmental program.

L3 ANSWER 27 OF 28 MEDLINE DUPLICATE 22
ACCESSION NUMBER: 86231413 MEDLINE
DOCUMENT NUMBER: 86231413 PubMed ID: 2423914
TITLE: Neurons dissociated from rat myenteric plexus retain differentiated properties when grown in cell culture. I. Morphological properties and immunocytochemical localization of transmitter candidates.
AUTHOR: Nishi R; Willard A L
CONTRACT NUMBER: NS07112 (NINDS)
NS18316 (NINDS)
NS20074 (NINDS)
SOURCE: NEUROSCIENCE, (1985 Sep) 16 (1) 187-99.
Journal code: NZR; 7605074. ISSN: 0306-4522.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198607
ENTRY DATE: Entered STN: 19900321
Last Updated on STN: 19980206
Entered Medline: 19860715

AB We have developed procedures for dissociating **neurons** from the myenteric plexus of the small intestine of newborn rats and for growing those **neurons** in **cell cultures** for up to 3 months. **Neurons** in these **cultures** retain many of the differentiated properties of myenteric **neurons** in vivo. This is the first of a series of 3 papers describing those properties. In this paper, we describe the **morphology** of cultured **neurons** that we have observed with light and electron microscopy; we also describe the patterns of straining observed when immunocytochemical techniques were used to localize neurotransmitter candidates in the cultured **neurons**. Intracellular injections of a fluorescent dye, Lucifer yellow, revealed that many of the cultured **neurons** had **morphologies** similar to those of myenteric **neurons** in vivo. When thin sections of **cultures** were viewed in an electron microscope, many **neurons** were observed to have numerous small (40-60 nm), clear synaptic vesicles and/or large (80-150 nm), opaque-cored (p-type) vesicles. Synaptic profiles were most often observed on neuronal somata. **Neurons** containing immunoreactive serotonin, substance P, somatostatin, enkephalin, bombesin and gastrin/cholecystokinin were observed in about the same proportions as they occur in the intact myenteric plexus. **Neurons** containing immunoreactive vasoactive intestinal polypeptide were found in higher numbers than reported in vivo. **Neurons** containing immunoreactive neurotensin, secretin and

glutamate decarboxylase were not observed. An antiserum directed against choline acetyltransferase stained 40-50% of the **neurons**. We conclude that myenteric **neurons** continue to express much of their normal differentiated properties even when they are removed from the gut, dissociated into a suspension of single **cells** and grown in **culture**. Such **cultures** will be useful for correlating the morphological, biophysical, pharmacological and synaptic properties of individual myenteric **neurons** and for testing the ability of altered environmental **conditions** to **change** those properties.

L3 ANSWER 28 OF 28 BIOSIS COPYRIGHT 2001 BIOSIS DUPLICATE 23
ACCESSION NUMBER: 1980:157118 BIOSIS
DOCUMENT NUMBER: BA69:32114
TITLE: ULTRASTRUCTURE OF CULTURED RAT NEO STRIATUM.
AUTHOR(S): PANULA P; RECHARDT L; HERVONEN H
CORPORATE SOURCE: DEP. ANAT., UNIV. HELSINKI, SILTAVUORENPENGER 20 A, 00170 HELSINKI 17, FINL.
SOURCE: NEUROSCIENCE, (1979) 4 (10), 1441-1452.
CODEN: NRSCDN. ISSN: 0306-4522.
FILE SEGMENT: BA; OLD
LANGUAGE: English
AB Four different types of **neurons** were identified in **cultures** of newborn rat neostriatum. Small and medium-sized **neurons** were most numerous. A few large **neurons** and some very small microneurons were observed. The **morphology** of medium-sized **neurons** varied, and this group may contain more than 1 functional subgroup. Axosomatic synapses were associated with all types of **neurons**, but most of them made contacts with medium-sized **neurons**. All axodendritic synapses made symmetrical contacts, with or without synaptic membrane thickenings. A great majority of terminal boutons contained small,. . . terminals with large pleomorphic clear vesicles were seen. Large granular vesicles were found in the peripheral cytoplasm of some medium-sized **neurons**, dendrites and axon terminals. No terminals contained exclusively large granular vesicles, but in some terminals they were more numerous than. . . The dense core of the large granular vesicles was resistant to reserpine treatment. Kainic acid did not cuase specific degenerative **changes**. The presence of several morphologically distinct populations of **neurons** renders it possible to study the nature of these **cells** in different experimental **conditions**. Intrinsic neostriatal synaptic contacts appeared to be symmetrical, although it is possible that some of them have the capacity to. . . develop asymmetrical contacts. The lact of effect of kainic acid may be explained by the early maturational stage of the **cells** or by the lack of extrinsic contacts. More functional studies are necessary before the usefulness of these **cultures** for investigating neostriatal function can be assessed.

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